APPENDIX A

INTELLIGENCE PREPARATION OF THE BATTLEFIELD, WARGAMING, AND INTELLIGENCE SYNCHRONIZATION

However absorbed a commander may be in the elaboration of his own thoughts, it is sometimes necessary to take the enemy into consideration.

—Winston Churchill, 1874-1965

Staffs use war-gaming to refine and compare potential friendly COAs. Comparing potential COAs, based on the results of wargaming, allows the staff to identify the best COA for recommendation to the commander.

Wargaming is a conscious attempt to visualize the flow of an operation, given friendly strengths and dispositions, threat assets and probable COAs, and a given battlefield environment. Wargaming attempts to foresee the action, reaction, and counteraction dynamics of operations. As a result, the staff—

- Develops a shared vision of the operation.
- Anticipates events.
- Determines the conditions and resources required for success.
- Identities a COA's strengths and weaknesses.
- Identifies the coordination requirements to produce synchronized results.
- Determines decision points.
- Determines information required to plan and execute the COA.
- Identities branches and sequels for further planning.

The entire staff participates; the G2/S2 plays a pivotal role in the process by role-playing the threat commander. If the G2/S2 accurately portrays a thinking, aggressive, noncooperative threat, then the staff is forced to plan for eventualities on the battlefield. The G2/S2 can accomplish this vital task only if he has used the IPB process to develop threat COA models that reflect the actual COAs available to the threat.

During staff wargaming a designated staff officer records the results of wargaming into the DST and BOS synchronization matrix. The results of wargaming enable the staff to plan and execute operations that will accomplish the command's mission.

The G2/S2 uses the results of wargaming to identify intelligence requirements and recommend PIR that support each friendly COA. He also uses the results of wargaming to create a strategy for the unit collection effort. The ISM is the tool the G2/S2 uses to link and synchronize the intelligence collection strategy with the expected flow of the operation. Finally, the G2/S2 builds a detailed collection plan from the ISM.

IPB and the G2/S2 play a critical role in the wargaming process. Guidelines for the G2/S2's role in the wargaming process follow below. For a complete discussion of the wargaming process see FM 101-5.

General Rules

The reliability and quality of the products that result from wargaming are dependent on adherence to a few basic rules. The general rules that follow are designed to avoid introducing bias into the wargaming process.

- List the advantages and disadvantages as they become obvious during the wargaming process. Do not rely solely on your memory.
- Remain unbiased. Keep an open mind. Do not let the personality of the commander or other staff officers influence you. Do not get emotionally involved in making any particular COA successful. Remain impartial when comparing friendly and enemy capabilities in a given situation.
- Ensure each COA remains feasible. If it becomes infeasible at any time during the wargame, stop the wargame and reject the COA.
- Avoid drawing premature conclusions and then presenting facts and assumptions to support them.
- Avoid comparing one COA with another during the wargame. Wait until the comparison phase.
- Wargame each COA separately.

Prepare for Wargaming

Determine the amount of time available for wargaming. Time constraints may force the staff to consider only the most dangerous and most likely threat COAs rather than the complete set. Time constraints may also limit the level of detail to which each COA is wargamed.

Gather the tools. The G2/S2 must bring enemy COA models to the wargaming session that accurately reflect the sets of available threat COAs. The G3/S3 will bring potential friendly COAs to the wargaming session.

Prepare the wargaming mapboard by posting the initial dispositions of friendly and threat units. Most often the staff uses a standard military map. Some situations may require the use of sketches or detailed terrain models.

Identify assumptions. Assumptions are tools that help to shape COAs. They address flank activities and other factors beyond the command's control. Assumptions about the threat, such as strength and rates of march, are included in the threat models that generated the COA models and situation templates.

List known critical events and DPs. Critical events identified before wargaming are usually specified or implied tasks that are essential to mission accomplishment. Other critical events will become apparent during wargaming. The staff should agree to explore and pre-plan decisions that their commander might have to make during the operation. They should avoid the temptation to wargame decisions of higher or subordinate headquarters. If time permits the staff may identify tasks to subordinate units that require synchronization.

Identify the echelons for consideration. Usually the friendly echelon under consideration is limited to the units directly subordinate to the friendly commander. The threat echelon under consideration is usually determined by the friendly mission. Offensive missions often require more resolution.

Identify the BOSs for consideration. The G2/S2 will usually confine his discussion to the primary enemy BOSs under consideration for each engagement. If time permits, the remainder of the staff may coordinate the effects of each friendly BOS during the wargaming of each COA.

Identify a "battlemaster" to referee and facilitate the wargaming session. The battlemaster is usually the commander, deputy commander, chief of staff, or XO. The battlemaster must remain impartial. Impartiality is best accomplished if the battlemaster does not also control the friendly forces during the wargame.

Identify the recording techniques to be used and a recorder. The recorder is usually the assistant G3/S3 or assistant G2/S2. The recorder prepares the DST, BOS synchronization matrix, and any other records of the wargame.

Select a wargaming method. Common techniques are the belt, avenue-in-depth, box, adversarial, narrative, and sketch and note techniques. See FM 101-5 for an in-depth discussion of each technique.

Establish time limits for wargaming each part of the battle. If time limits are not established, staffs often find that they plan one part of the battle in extraordinary detail at the expense of other areas. The battlemaster might even consider limiting the amount of time each participant has to speak. In any event, the staff should discipline itself to avoid long, fruitless discussions.

Conduct the Wargame

Begin the wargame of a COA by visualizing the operation from the initial dispositions through each critical event (identified earlier) to completion of the commander's objective or failure of the course.

The wargame sequence is **action—reaction—counteraction.** Whichever side (G2/S2 or G3/S3) has the initiative will begin the discussion by articulating the appropriate COA. For example, if a staff is planning a defense, the G2/S2 will begin the wargaming session by talking through one of the threat COAs for attack. He should start with either the most likely or most dangerous COA.

As the side with initiative describes his COA, the other side will interrupt, as appropriate, to describe his reactions or attempts to preempt his opponent's action. The initial force then interrupts at the appropriate moment to describe his counteraction, starting the action—reaction process over again. Each interruption represents a decision that will be made either by the commander or staff during execution of the COA under consideration.

During the **action—reaction—counteraction** drills, the G2/S2 describes the location and activities of enemy HVTs. He highlights points during the operation where these assets are of importance to the threat's COA. This may prompt the staff to nominate certain HVTs as HPTs, making their engagement an integral part of the friendly COA under consideration. The G2/S2 updates the situation and event templates associated with the threat COA to reflect the TAIs supporting engagement of those HPTs.

The G2/S2 prompts staff planning by describing the various actions available to the threat. In addition to the basic set of threat COAs, the G2/S2 should describe the threat actions that might prompt the execution of the following friendly decisions:

- Commit the reserve.
- Use attack helicopters or close air support.

- Artillery barrages against TAIs.
- Scatterable mine delivery.
- Shift the main effort.
- Advance to the next phase of the operation.
- Change overall mission.
- Call to higher headquarters for help.

The battlemaster stops the wargame and notes the specifics of the problems encountered if, while wargaming a friendly COA, the staff identifies—

- An enemy reaction that would prevent success of the operation which the friendly force could not counteract.
- A series of friendly actions and counteractions that deny or contradict the friendly deception story.

The staff proceeds to wargame the friendly COA against any remaining threat COAs. Only after the COA has been wargamed against all threat COAs should the staff decide whether to modify the COA to correct its deficiencies, to retain the COA as it is (noting the risk of failure), or to discard the COA altogether.

Similarly, the G2/S2 uses the wargame to identify modifications and refinements to the threat COA models. As critical events become apparent, the G2/S2 prepares situation templates to "record" threat dispositions during the event. He identifies any necessary modifications or refinements to the threat COA models as the wargame progresses, either making them immediately or noting the necessary changes for later.

The G2/S2 should ensure that the staff considers all threat COAs and other options available to the threat. The staff should NEVER wargame against only one threat COA. As a minimum, the staff should wargame against the most likely and the most dangerous threat COAs.

The battlemaster should ensure that all decisions identified are ones that his staff or commander will make during battle. Do not waste time wargaming the decisions of a higher or subordinate unit.

Record the Results of Wargaming

Each interruption in the action—reaction—counteraction drill corresponds to a decision by the commander or staff. Each time the staff identifies a decision point, the recorder makes the appropriate entries in the staff's recording tools, such as the DST and the BOS synchronization matrix. The recorder should "capture" enough information to allow the staff to anticipate and plan for each decision. As a minimum this includes—

- Decision criteria. What activity, event, or information prompts the decision? The decision criteria is usually related to threat activity. Sometimes it is related to friendly forces or third-party activity.
- Friendly action or response. What is the result of the decision? Decisions usually result in engagement of HPTs, a change in the friendly COA, or the execution of an on-order or be-prepared mission by subordinate units.

- DP. When the decision criteria is related to the threat, the DP is the location and time where collection assets will look for indicators to verify or deny that the decision criteria has occurred. If the decision criteria is related to friendly force information, the DP usually corresponds to a TPL. The recorder ensures that he captures both the time and geographic location of the DP. The staff ensures they select DPs which allow decisions in time to properly synchronize the resulting friendly actions. When placing DPs, consider time for—
  - Intelligence collection.
  - Processing and disseminating the intelligence to the commander or other decision maker.
  - Preparation and movement time of friendly forces or assets that will execute the mission.
  - Activities or movement of the target or threat during the time elapsed between decision and execution.
- TAI. This is the location where the effects of friendly actions are synchronized. TAIs are often engagement areas or sets of targets. The staff ensures that the physical distance between a DP and its associated TAI allows for the time delays involved in collecting, processing, and communicating intelligence; the movement of threat forces; and the timelines associated with friendly activities.
- Update the HPT list. If the friendly action involves engaging a threat HVT, the recorder adds the HVT to the list of HPTs for the COA under consideration. If there is a time element involved (for example, if the HPT is only high payoff during a particular phase of the battle), he makes the appropriate notations.
- NAI that support the DP. The G2/S2 usually records the NAI, but some staffs make it the responsibility of the recorder. The DP is almost always the only NAI associated with a particular decision. Sometimes, however, the G2/S2 needs information from more than one NAI in order to confirm or deny that the decision criteria has occurred.

If time permits, the battlestaff may also discuss and record the synchronization of friendly actions not related to DPs (for example, which will occur regardless of events on the battlefield). Examples include—

- Crossing the line of departure or line of contact.
- Initiating preparatory fires.
- Shifting preparatory fires.

If the interaction of anticipated friendly and threat events is particularly complicated, the staff might prepare a two-sided timeline. The two-sided timeline serves as a quick reference tool for planning the synchronization of effects in fluid situations. The example shown in Figure A-1 depicts the reaction of enemy reserve forces to an envelopment by friendly forces. In this example, the timeline depicts enemy options (DPs) and anticipated critical events, such as the covering force battle, a refueling-on-the-move operation, other. Friendly DPs and options, although not shown in this figure, are also included on the timeline.

After the primary wargaming session, distinct members of the battlestaff may initiate specialized sessions for their function areas. For example, the G4/S4 support operations staffs may want to wargame logistics activities throughout the operation.

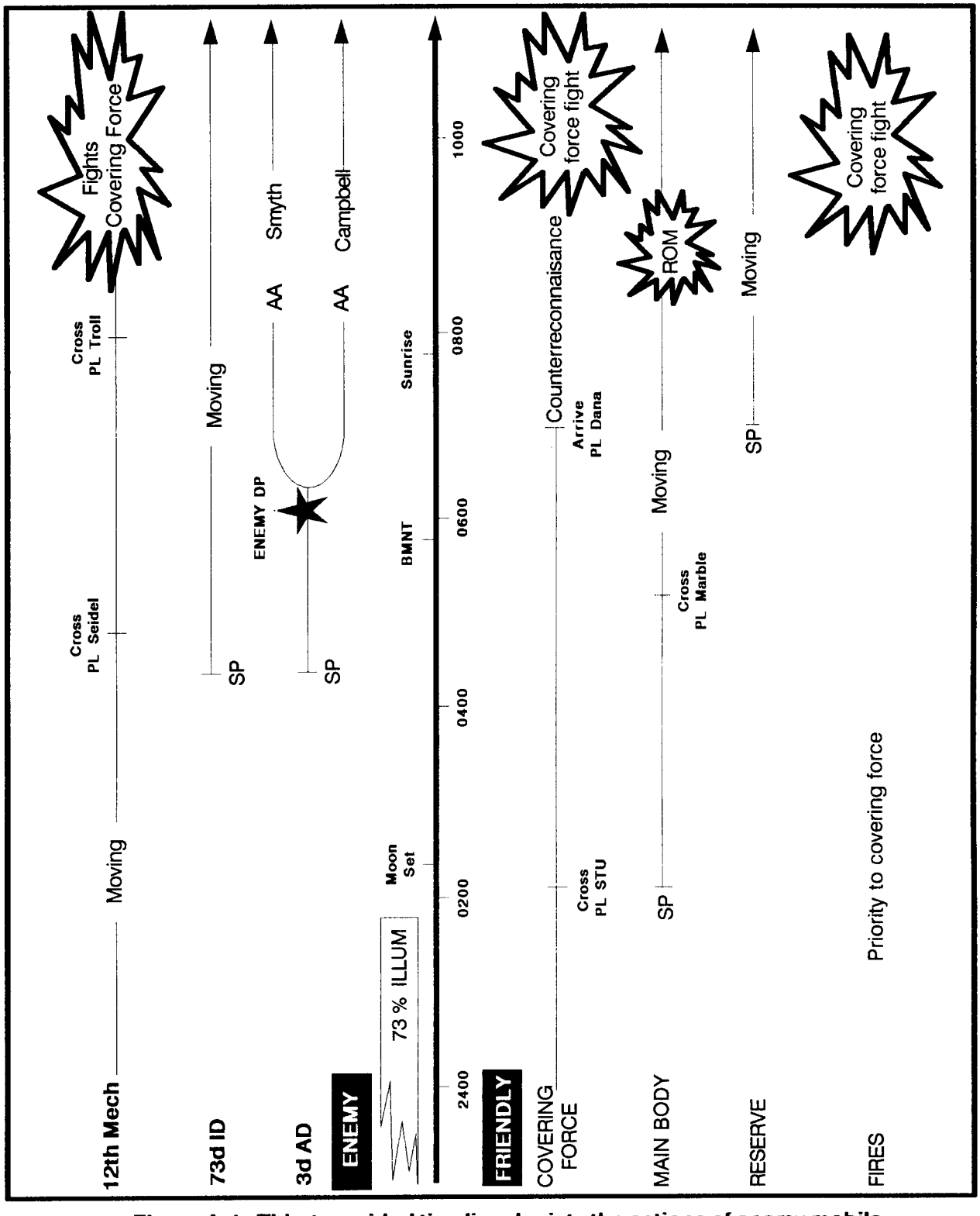

Figure A-1. This two-sided timeline depicts the actions of enemy mobile reserves against the actions of friendly forces.

Conduct the Targeting Conference

The FSO almost always convenes a targeting session after the base wargaming. The targeting conference further refines HPTs nominated during wargaming and develops plans to engage them. During the targeting conference—

- The staff develops recommendations on how each HPT should be engaged.
- Using situation templates and other IPB products, the staff assesses the risk to friendly attacking assets.
- The G3/S3 and FSO develop the attack guidance matrix (see Figure 1-3).
- The G2/S2 identifies NAIs that will locate and track HPTs and includes them on the event template.
- The G3/S3 and FSO determine BDA needs. The G2/S2 includes these as intelligence requirements that support the friendly COA and develops NAIs that support them. These NAIs are often the TAIs where the target is engaged.

Compare Friendly Courses of Action

Following wargaming, the staff compares friendly COAs to identify the one that has the highest probability of success against the set of threat COAs. Each staff officer uses his own criteria for comparing the friendly COAs in his own staff area of responsibility. The G2/S2 compares friendly COAs based on their ability to defeat the threat's COA and his ability to support the command with the intelligence required to execute each friendly COA.

Led by the G3/S3, each staff officer presents his findings to the remainder of the staff. Together they determine which friendly COA they will recommend to the commander. In the event they cannot reach a conclusion, the chief of staff or XO will determine which COA to recommend to the commander.

Synchronize Intelligence

The staff then presents its recommendation to the commander. The G3/S3 briefs each COA, including any branches and sequels, using the results and records of wargaming, such as the DST and BOS synchronization matrix. He highlights the advantages and disadvantages of each COA.

The commander decides upon a COA and announces his concept of the operation. Using the results of wargaming associated with the selected COA, the staff prepares plans and orders that implement the commander's decision.

Decisions made during wargaming form the basis for the "be prepared" and "on order" tasks specified in OPORDs and FRAGOs. The decision criteria associated with each DP accompanies the task as it is written into paragraph 3 of the OPORD. For example: "O/O, TF HONABACH will attack to destroy enemy forces vic OBJ HEAD. This order will be given if the 32d Division turns SW onto HWY 34."

Prioritizing Intelligence Requirements:

The G2/S2 normally discards the initial set of intelligence requirements developed during mission analysis and replaces them with the intelligence requirements developed during wargaming. The G2/S2 should designate the decision criteria for each DP as an intelligence requirement. The intelligence requirement should not be larger than the decision criteria. In other words, the G2/S2 should resist the temptation to combine two decision criteria into a

single intelligence requirement. He should also avoid adding additional requirements onto the intelligence requirement. If the battlestaff fully considered the G2/S2's prompting during wargaming, additional information is unnecessary for the successful execution of the unit mission.

The G2/S2 should prioritize the list of intelligence requirements to reflect his recommended PIR and present it to the commander. The commander will designate the most important intelligence requirements as PIR, prioritizing them to reflect their relative importance. The remaining intelligence requirements are prioritized among themselves as information requirements (IR).

If intelligence requirements vary over the course of the operation, the G2/S2 prepares several prioritized lists. For example, PIR may vary in importance depending on the phase of the operation. PIR during the first phase of an operation may be unnecessary in later phases.

The Intelligence Synchronization Matrix:

The ISM is the expanded intelligence portion of the BOS synchronization matrix. The G2/S2 begins the ISM by establishing blank timelines for each collection asset that match the timelines on the BOS synchronization matrix.

The G2/S2 then establishes the LTIOV times for each intelligence requirement. This is easy to determine since each intelligence requirement is exactly matched to the criteria to execute a decision identified in wargaming. The LTIOV timelines are determined from the DPs recorded on the DST.

The S2 or collection manager then develops a collection strategy for each intelligence requirement that will ensure it is answered on time. He considers—

- Tasking timelines associated with each collection system or discipline.
- Collection and processing timelines.
- Dissemination timelines.
- Type of target or activity collected against.
- Location of the NAI collected against.
- Timelines associated with the expected threat activity.

The collection strategies, which are designed not only to collect the intelligence but to deliver it on time, are then entered onto the ISM. The S2 or collection manager then develops a detailed collection plan using the ISM as the basic structure.

Execute the Battle

As the staff tracks the battle, they refer to the DST and BOS synchronization matrix to determine which decisions are becoming due. The G2/S2 then looks at the ISM to determine which collection agencies owe the information and intelligence which will enable the decision to be made in a timely manner. The G2/S2 may have to re-prompt the collection asset to the upcoming intelligence requirement. This is especially true if the course of the battle is occurring faster than anticipated.

As the collection assets report, the intelligence section conducts analysis to determine if decision criteria have been met. If not, the collection manager must retask the collector or the intelligence section must make an educated guess based on available information. As

each decision criteria is satisfied, the S2 or collection manager refers to the DST and BOS synchronization matrix to ensure that all decision makers receive the appropriate intelligence.

Mini-Wargaming and the Dynamic, Recurring Nature of IPB:

The DST, BOS synchronization matrix, and ISM are based on assumptions about the threat's COAs and the dynamics of the operation. It will often occur that the assumptions prove less than 100 percent accurate. Often the only change is in the timelines; the operation may progress more or less quickly than anticipated. Sometimes, however, the threat executes a COA not completely anticipated during wargaming, or the operation's dynamics lead to unexpected branches and sequels.

In order to anticipate the changes such eventualities dictate, the staff uses mini-wargaming to continually reevaluate their assumptions, reinitiating the IPB and decision making processes as necessary. When any member of the staff identifies conditions which require revalidation or refinement of the plan, he initiates a mini-wargame. The G2/S2 prompts mini-wargame sessions whenever he develops intelligence that runs counter to planning assumptions.

The G2/S2 usually begins by discussing the current state of the common understanding of the battlefield:

- He reviews the IPB predictions that have been confirmed, denied, and are yet to be confirmed. These are usually assumptions about threat COAs but might also be assumptions about the terrain or other factors.
- He follows this with a full report of the unanticipated intelligence that led to the mini-wargame. He emphasizes the significance of the intelligence in terms of the threat COAs that it indicates or fails to indicate.

The G2/S2 should then present an informal, revised set of threat COAs that account for the new intelligence. The revised COAs usually result from an abbreviated IPB process that may have been executed in only a few minutes.

If the new intelligence is too contrary to the original IPB, the commander may want to initiate a completely new planning session. Otherwise, the personnel present at the mini-wargame modify the current plan based on the revised IPB. Because time during conduct of the operation is usually limited, the staff follows an abbreviated form of the wargaming and intelligence synchronization techniques discussed above.

The G3/S3 usually prepares a FRAGO to incorporate new tasks to subordinate units. The G2/S2 should use this opportunity to retask collection assets in accordance with the revised collection plan.

The staff should conduct numerous mini-wargame sessions during the course of an operation. A good technique is to pre-schedule mini-wargame sessions every 2 to 6 hours. At each session the staff reviews the current situation and the "health" of its current plans.

An Example Application

The following example illustrates how a G2/S2 can use products from IPB and wargaming to synchronize intelligence. It shows the process for two decisions only, but the same process applies to all decisions that arise from wargaming.

Scenario:

The 2d Battalion, 99th Infantry (Light), is conducting counterinsurgency operations in the country of Daemonia. The battalion has a large AO. From the brigade intelligence estimate,

the S2 learns that an insurgent company of regular infantry is expected to enter the battalion AO within 72 hours.

The S2 section initiated an IPB process similar in style and approach to that shown in scenario 3 of Chapter 3. Figure A-2 shows a sketch map of the AO. The battalion situation templates highlight—

- Key facilities and targets overlay (potential targets for the insurgents).
- Infiltration and exfiltration routes.
- Likely base camps within the AO.
- Probable logistics, intelligence, and security activities within the AO.

Pressed for time, the commander selected a friendly COA immediately after conducting mission analysis. The friendly plan includes two phases:

- Phase I: Establish platoon-sized ambushes along the 5 likely infiltration routes while conducting reconnaissance of the 11 possible base camp areas.
- Phase II: Destroy the insurgent company in its base camp.

During both phases the battalion will accept risk at insurgent target areas identified on the key facilities and targets overlay.

The battalion will also retain a company (-) as a mobile reserve for the entire mission. The division has given the battalion operational control of enough air assault assets to conduct immediate lift of one platoon for the duration of the mission.

The S2 and S3 have verified that the commander's plan should succeed against all the threat COAs developed during IPB.

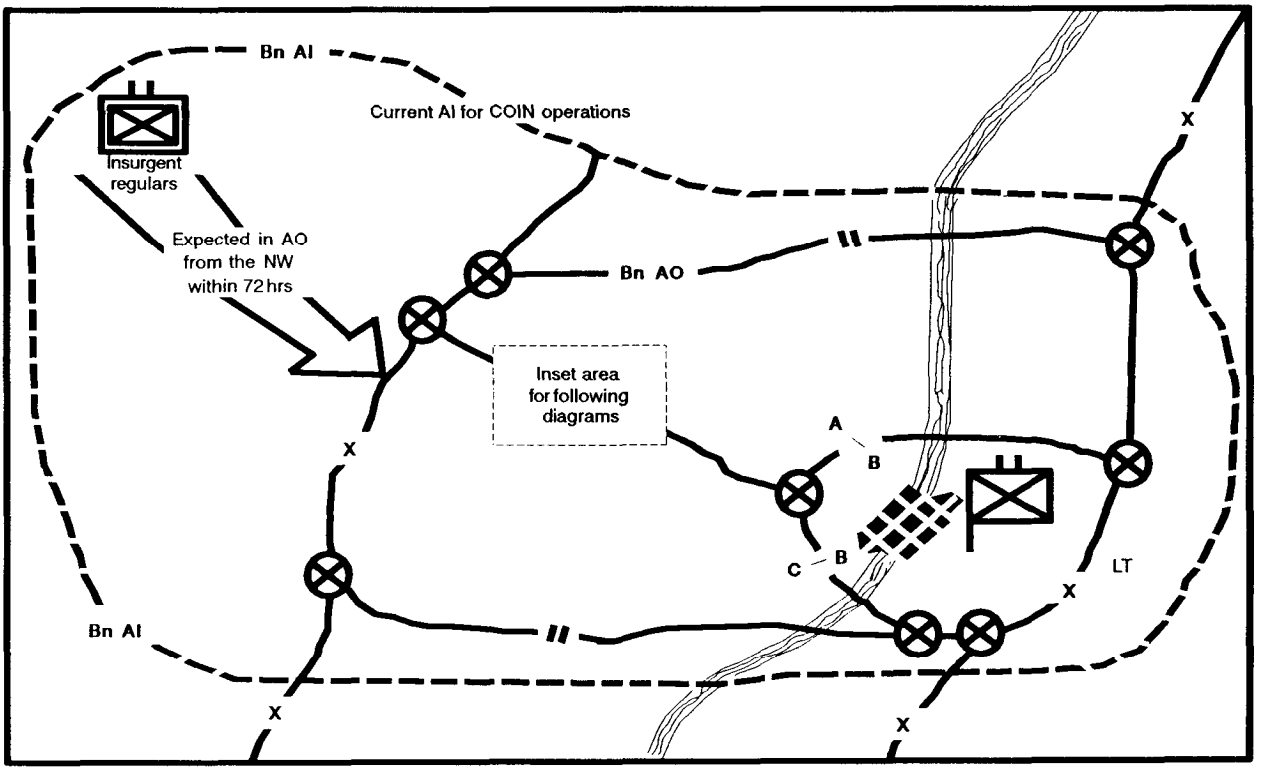

Figure A-2. The area of operations.

Wargaming:

Due to the large size of the AO and the limited number of critical areas, the S2 and S3 have decided to use the box technique of wargaming. The first box includes three possible locations for enemy base camps. The wargaming begins with the S2 describing the enemy COA models for each of the three possible base camps, one each located in NAIs 1, 2, and 3 in Figure A-3. The S2 describes how each base camp would be physically arranged to include their—

- Warning system for attacks.
- Defense and security system.
- Evacuation and exfiltration procedures.

Due to the proximity of the three base camps and other common features identified during IPB, the S3 decides to use the same control measures for actions against any of the three base camps. The staff synchronizes their plan for phase II of the operation in this box of the battlefield:

- When the insurgent company is located in any of these three NAIs, A Company will immediately occupy tactical assembly area (TAA) BEAUTY while C Company will immediately occupy TAA LOGIC.
- If the insurgents are in base camp 1 or 3:
  - A Company receives 3d platoon of B Company.

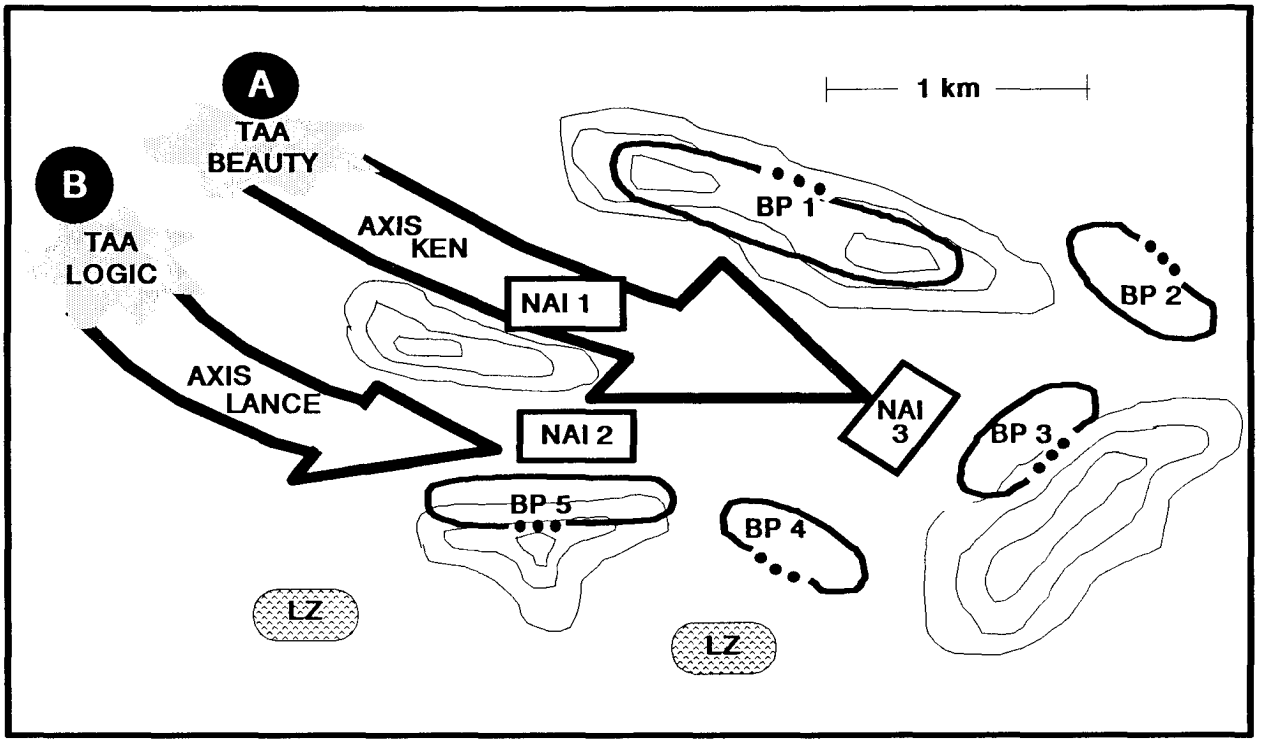

Figure A-3. Named areas of interest.

- On order, C Company will occupy battle positions 3, 4, and 5 in order to block the southern and eastern evacuation routes.
- On order, B Company (-) will conduct air assault to occupy battle positions 1 and 2 in order to block the northern evacuation routes.
- On order, A Company will conduct movement to contact along AXIS KEN as the battalion main effort to destroy insurgents vicinity objectives in NAI 1 or NAI 3.

- If the insurgents are in base camp 2:
  - C Company receives 3d platoon of B Company.
  - On order, A Company will occupy battle positions 1, 2, and 3 in order to block the northern and eastern evacuation routes.
  - On order, B Company (-) will conduct air assault to occupy battle positions 4 and 5 in order to block the southern evacuation routes.
  - On order, C Company will conduct movement to contact along AXIS LANCE as the battalion main effort to destroy insurgents vicinity objectives in NAI 2.

The battle staff then plans appropriate support from each BOS for each scheme of maneuver.

While the staff synchronizes the concept of operations for this part of the battlefield, the recorder enters information into the DST and BOS synchronization matrix. For purposes of clarity he decides to combine the operations graphics and the DST (see Figure A-4).

After wargaming, the S2 translates the decision criteria for each decision from the BOS synchronization matrix into an intelligence requirement (see Figure A-5). As the S2 prioritizes the list, he places intelligence requirements numbers 1 and 2 at the top of the list as his recommended PIR. The commander agrees and the new PIR are—

- PIR 1: Has the insurgent company established a base camp in NAI 1 or 3?
- PIR 2: Has the insurgent company established a base camp in NAI 2?

As part of his collection strategy, the S2 decides to use the battalion scouts to answer PIR 1 and a patrol from B Company to answer PIR 2. The insurgent company is expected to occupy the base camp only for a limited time. Maneuver and operational security constraints narrow the window even further. The S2 records all this information into his ISM (see Figure A-6).

Execution:

Eleven hours after the battalion issued the OPORD, the scouts report significant insurgent activity in NAI 3, with no activity in NAI 1 or 2. Additionally, the scout platoon leader, who sat in on the wargaming session, reports that the hill selected for use as BP 1 is actually a cliff that would not support exfiltration lanes for insurgents. However, the gap vicinity BP 4 supports more escape lanes than one infantry platoon can block.

The S2 prompts a mini-wargame session where he presents the new intelligence provided by the scout platoon. The commander and S3 decide to modify the original plan—

- B Company will occupy BPs 1, 2, *and* 3.
- C Company will occupy BPs 4 and 5 *only*.

The S3 issues the appropriate FRAGOs while the S2 retasks the scout platoon to provide additional information on the guerrillas' early warning and defense system.

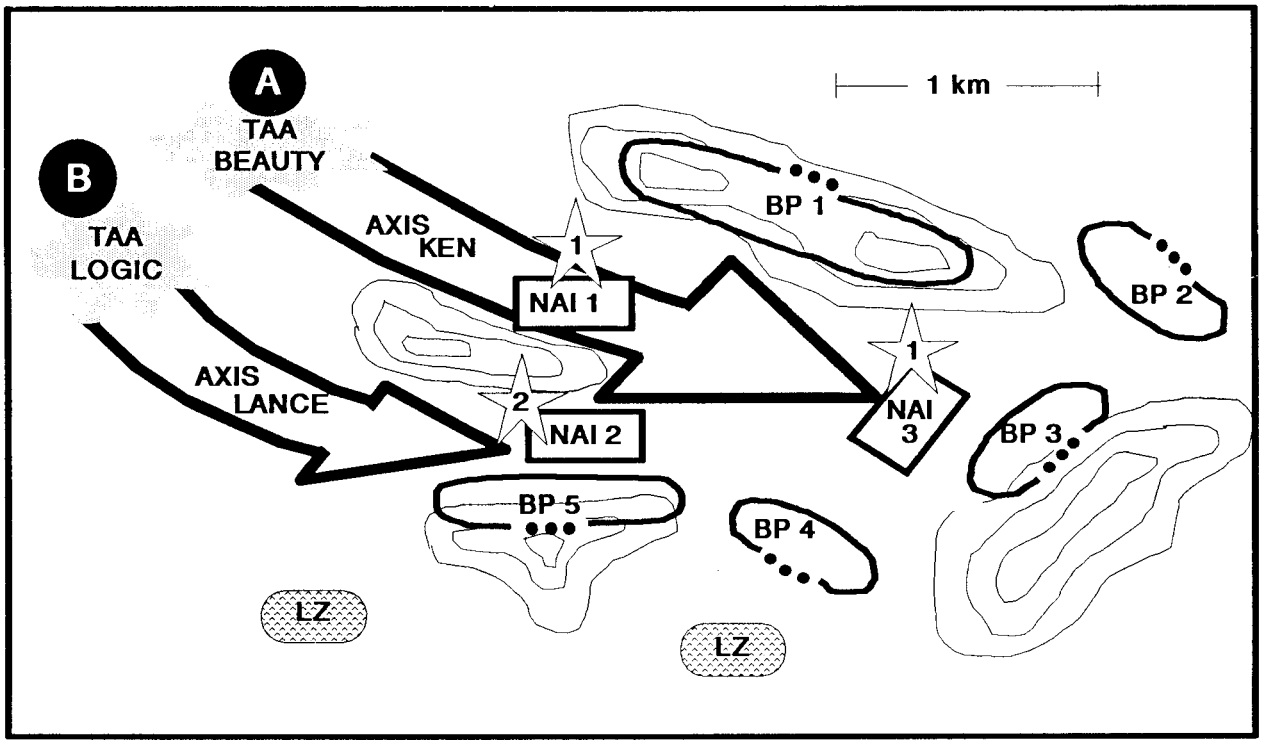

Figure A-4. Decision support template.

DP No.	No. 1	No. 2	No. 3
Decision criteria	Insurgent Camp is in NAI No. 1 or No. 3	Insurgent Camp is in NAI No. 2	
Maneuver	A Co receives 3/B, occupy TAA BEAUTY, O/O movement to CATK along AXIS KEN B Co Air Assaults O/O to occupy BPs 1 and 2 C Co occupies TAA LOGIC, O/O occupy BPs 3, 4, and 5	A Co occupies TAA BEAUTY, O/O occupy BPs 1, 2, and 3 B Co Air Assaults O/O to occupy BPs 4 and 5 C Co receives 3/B, occupy TAA LOGIC, O/O movement to CATK along AXIS LANCE	
FS	Priority: A, B, C	Priority: C, B, A	
M-CM-S	1/A/13th Engr to A	1/A/13th Engr to C	

Figure A-5. Partial BOS synchronization matrix.

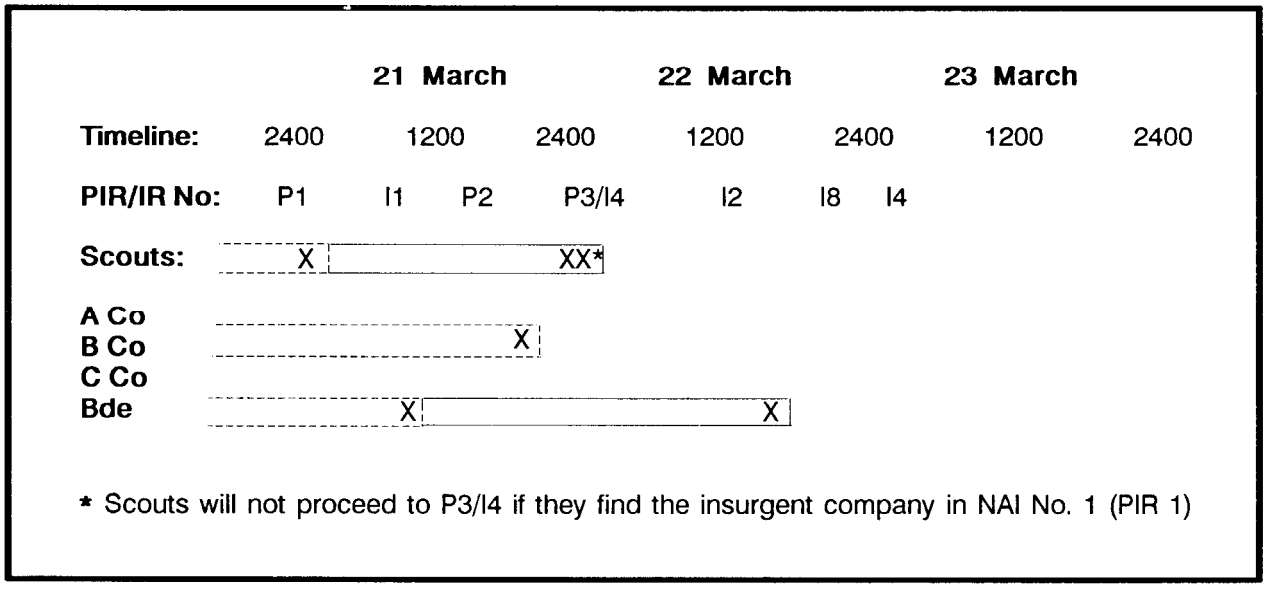

Figure A-6. The intelligence synchronization matrix.

Summary

The synchronization that occurs during staff wargaming drastically multiplies the combat effectiveness of a unit. To make wargaming work, the G2/S2 needs to force the staff to consider the full set of COAs available to the threat. The G2/S2 develops threat COAs during the IPB process.

During wargaming the staff plans responses or preemptive actions to deal with threat actions. The G2/S2 uses the records and products of wargaming, such as the DST and BOS synchronization matrix to structure the unit collection effort to deliver the intelligence the decision makers need at the times they need it. He does this through the use of intelligence requirements and the synchronization of intelligence.

Because the threat follows his own plan, the staff must constantly review the current situation and update its plan as needed to ensure success. Incorporation of new information into the continuous IPB process ensures that the necessary changes are identified, prompting additional iterations of the decision making process as necessary.